

<110> Robert G.K. Donald  
Paul Liberator  
Xiaotian Zhong

<120> Coccidian parasite casein kinase I as a  
chemotherapeutic target for antiprotozoal agents

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<150> 60/537,094

<151> 2004-01-16

<150> PCT/US2005/000955

<151> 2005-01-12

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ggc aat caa aac acg atc tac gtg atc gac ttc ggc ctg gcg aag aag	646
Gly Asn Gln Asn Thr Ile Tyr Val Ile Asp Phe Gly Leu Ala Lys Lys	
165 170 175	
ttt cgc gat ccg aaa acg cac caa cat att ccg tac aga gaa aac aag	694
Phe Arg Asp Pro Lys Thr His Gln His Ile Pro Tyr Arg Glu Asn Lys	
180 185 190	
aat ctc acg gga acg gcg cgc tac gcg tcc atc agt gcg cat ctg ggt	742
Asn Leu Thr Gly Thr Ala Arg Tyr Ala Ser Ile Ser Ala His Leu Gly	
195 200 205	
tcc gag cag agt cgc cga gat gac ctc gaa gca gtc ggc tac gtt ctc	790
Ser Glu Gln Ser Arg Arg Asp Asp Leu Glu Ala Val Gly Tyr Val Leu	
210 215 220	
atg tac ttc tgt cga gga ggc acg ctg cct tgg cag ggc atc aaa gcg	838
Met Tyr Phe Cys Arg Gly Gly Thr Leu Pro Trp Gln Gly Ile Lys Ala	
225 230 235 240	
aat acc aaa cag gag aag tac cac aag atc atg gag aag aag atg tcg	886
Asn Thr Lys Gln Glu Lys Tyr His Lys Ile Met Glu Lys Lys Met Ser	
245 250 255	
acg ccc gtc gag gtg cta tgc aag gga tat cca agc gaa ttt gcc aca	934
Thr Pro Val Glu Val Leu Cys Lys Gly Tyr Pro Ser Glu Phe Ala Thr	
260 265 270	
tac ttg cac tac tgc cgc tcc ttg cga ttc gag gac cga ccg gac tac	982
Tyr Leu His Tyr Cys Arg Ser Leu Arg Phe Glu Asp Arg Pro Asp Tyr	
275 280 285	
gcc tac ctc aag cga ctc ttt cga gat ctc tac atc aaa gag ggc tac	1030

Ala	Tyr	Leu	Lys	Arg	Leu	Phe	Arg	Asp	Leu	Tyr	Ile	Lys	Glu	Gly	Tyr	
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gat	gac	agt	gac	cgc	gaa	ttc	gac	tgg	aca	gtg	aaa	ctt	tcg	tcg	cgc	1078
Asp	Asp	Ser	Asp	Arg	Glu	Phe	Asp	Trp	Thr	Val	Lys	Leu	Ser	Ser	Arg	
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agt	ctc	gga	cgc	cca	agc	agt	cga	gcg	caa	cat	gtt	tta	ctg	agt	caa	1126
Ser	Leu	Gly	Pro	Pro	Ser	Ser	Arg	Ala	Gln	His	Val	Leu	Leu	Ser	Gln	
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gac	acc	cga	acg	cga	ggg	aag	cgg	gag	aca	gat	cga	cct	gtc	gct	gcg	1174
Asp	Thr	Arg	Thr	Arg	Gly	Lys	Arg	Glu	Thr	Asp	Arg	Pro	Val	Ala	Ala	
			340					345					350			
cgg	agt	ggc	gac	cgc	gaa	cga	gga	atc	cat	ttc	agc	aac	ggg	aac	gtg	1222
Arg	Ser	Gly	Asp	Arg	Glu	Arg	Gly	Ile	His	Phe	Ser	Asn	Gly	Asn	Val	
		355					360					365				
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Gly	Asn	Pro	Ser	Met	Ala	Thr	Asn	Pro	Gly	Gly	Leu	Ser	Val	Met	Val	
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His	Glu	Arg	Thr	Ser	Leu	Val	Asp	Gln	Gly	Asp	Arg	Gly	Ser	Arg	Glu	
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act	tct	acg	cgg	aaa	gaa	gac	gcg	aag	gac	ggc	aga	tgg	cca	gga	ggc	1366
Thr	Ser	Thr	Arg	Lys	Glu	Asp	Ala	Lys	Asp	Gly	Arg	Trp	Pro	Gly	Gly	
			405					410						415		
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Arg	Phe	Ser	Cys	Leu	Pro	Leu	Leu	Cys	Arg	Arg	Ser	Pro	Thr	Lys	Ala	
			420					425					430			

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aaaaaa						2373

<210> 6  
 <211> 432  
 <212> PRT  
 <213> Toxoplasma gondii

<400> 6																
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			20					25					30			



Gly	Arg	Lys	Ile	Gly	Ser	Gly	Ser	Phe	Gly	Asp	Ile	Tyr	Lys	Gly	Leu
		35					40					45			
Asn	Ser	Gln	Thr	Gly	Gln	Glu	Val	Ala	Leu	Lys	Val	Glu	Ser	Thr	Lys
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Ala	Lys	His	Pro	Gln	Leu	Leu	Tyr	Glu	Tyr	Lys	Leu	Leu	Lys	His	Leu
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Gln	Gly	Gly	Thr	Gly	Ile	Ala	Gln	Val	Phe	Cys	Cys	Glu	Thr	Ala	Gly
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Asp	His	Asn	Ile	Met	Ala	Met	Glu	Leu	Leu	Gly	Pro	Ser	Leu	Glu	Asp
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Ser	Glu	Gln	Ser	Arg	Arg	Asp	Asp	Leu	Glu	Ala	Val	Gly	Tyr	Val	Leu
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225					230					235					240
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				245					250					255	
Thr	Pro	Val	Glu	Val	Leu	Cys	Lys	Gly	Tyr	Pro	Ser	Glu	Phe	Ala	Thr
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Tyr	Leu	His	Tyr	Cys	Arg	Ser	Leu	Arg	Phe	Glu	Asp	Arg	Pro	Asp	Tyr
		275					280					285			
Ala	Tyr	Leu	Lys	Arg	Leu	Phe	Arg	Asp	Leu	Tyr	Ile	Lys	Glu	Gly	Tyr
	290					295					300				
Asp	Asp	Ser	Asp	Arg	Glu	Phe	Asp	Trp	Thr	Val	Lys	Leu	Ser	Ser	Arg
305					310					315					320
Ser	Leu	Gly	Pro	Pro	Ser	Ser	Arg	Ala	Gln	His	Val	Leu	Leu	Ser	Gln
				325					330					335	
Asp	Thr	Arg	Thr	Arg	Gly	Lys	Arg	Glu	Thr	Asp	Arg	Pro	Val	Ala	Ala
			340					345					350		
Arg	Ser	Gly	Asp	Arg	Glu	Arg	Gly	Ile	His	Phe	Ser	Asn	Gly	Asn	Val
		355					360					365			
Gly	Asn	Pro	Ser	Met	Ala	Thr	Asn	Pro	Gly	Gly	Leu	Ser	Val	Met	Val
	370					375					380				
His	Glu	Arg	Thr	Ser	Leu	Val	Asp	Gln	Gly	Asp	Arg	Gly	Ser	Arg	Glu
385					390					395					400
Thr	Ser	Thr	Arg	Lys	Glu	Asp	Ala	Lys	Asp	Gly	Arg	Trp	Pro	Gly	Gly
				405					410					415	
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 <211> 543  
 <212> DNA

<213> Toxoplasma gondii (EST)

<400> 7

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accaacatat tccgtacaga gaaaacaaga atctcacggg aacggcgcgc tacgcgtcca 180
tcagtgcgca tctgtgttcc gagcagagtc gccgagatga cctcgaagca gtcgggtacg 240
ttctcatgta cttctgtcga ggaggcacgc tgccttggca gggcatcaaa gcgaatacca 300
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gcaagggata tccaagcgaa tttgccacat acttgcacta ctgccgctcc ttgcgattcg 420
aggaccgacc ggactacgcc tacctcaagc gactctttcg agatctctac atcaaagagg 480
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<210> 8

<211> 341

<212> DNA

<213> Toxoplasma gondii (EST)

<400> 8

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atgacagtga ccgcgaattc gactggacag tgaaactttc gtcgcgcagt ctccggaccgc 180
caagcagtcg agcgcaacat gttttactga gtcaagacac ccgaacgcga gggaagcggg 240
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<211> 30

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<213> Artificial Sequence

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<223> oligonucleotide

<400> 9

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<211> 23

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<220>

<223> oligonucleotide

<400> 10

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<210> 11

<211> 21

<212> PRT

<213> Eimeria tenella (peptide)

<400> 11

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 Ile Ser Ala Arg Asp  
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<210> 12  
 <211> 20  
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 <213> Eimeria tenella (peptide)

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<210> 13  
 <211> 18  
 <212> PRT  
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<220>  
 <223> peptide

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<210> 14  
 <211> 11  
 <212> PRT  
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<220>  
 <223> peptide

<400> 14  
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<210> 15  
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<220>  
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<400> 15

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<210> 16  
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<220>  
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<400> 16

Met His Lys Asn Glu Thr Val Glu Cys Leu Lys  
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<210> 17  
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<220>  
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<400> 17  
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<220>  
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<400> 18  
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<400> 20  
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<210> 21  
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 <213> Plasmodium falciparum

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 35 40 45  
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 50 55 60  
 Val Pro Lys Val Tyr Trp Tyr Gly Ile Glu Gly Asp Phe Thr Ile Met  
 65 70 75 80  
 Val Leu Asp Leu Leu Gly Pro Ser Leu Glu Asp Leu Phe Thr Leu Cys  
 85 90 95  
 Asn Arg Lys Phe Ser Leu Lys Thr Val Arg Met Thr Ala Asp Gln Met  
 100 105 110  
 Leu Asn Arg Ile Glu Tyr Val His Ser Lys Asn Phe Ile His Arg Asp  
 115 120 125  
 Ile Lys Pro Asp Asn Phe Leu Ile Gly Arg Gly Lys Lys Val Thr Leu  
 130 135 140  
 Ile His Ile Ile Asp Phe Gly Leu Ala Lys Lys Tyr Arg Asp Ser Arg  
 145 150 155 160  
 Ser His Thr Ser Tyr Pro Tyr Lys Glu Gly Lys Asn Leu Thr Gly Thr  
 165 170 175  
 Ala Arg Tyr Ala Ser Ile Asn Thr His Leu Gly Ile Glu Gln Ser Arg  
 180 185 190  
 Arg Asp Asp Ile Glu Ala Leu Gly Tyr Val Leu Met Tyr Phe Leu Arg  
 195 200 205  
 Gly Ser Leu Pro Trp Gln Gly Leu Lys Ala Ile Ser Lys Lys Asp Lys  
 210 215 220  
 Tyr Asp Lys Ile Met Glu Lys Lys Ile Ser Thr Ser Val Glu Val Leu  
 225 230 235 240  
 Cys Arg Asn Ala Ser Phe Glu Phe Val Thr Tyr Leu Asn Tyr Cys Arg  
 245 250 255  
 Ser Leu Arg Phe Glu Asp Arg Pro Asp Tyr Thr Tyr Leu Arg Arg Leu  
 260 265 270  
 Leu Lys Asp Leu Phe Ile Arg Glu Gly Phe Thr Tyr Asp Phe Leu Phe  
 275 280 285

Asp Trp Thr Cys Val Tyr Ala Ser Glu Lys Asp Lys Lys Lys Met Leu  
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 Gln Arg Asn Asn

<210> 22  
 <211> 353  
 <212> PRT  
 <213> Leshmania major

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 35 40 45  
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 50 55 60  
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 65 70 75 80  
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 85 90 95  
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 100 105 110  
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 115 120 125  
 Val Leu His Arg Asp Ile Lys Pro Asp Asn Phe Leu Met Gly Thr Gly  
 130 135 140  
 Lys Lys Gly His His Val Tyr Ile Ile Asp Phe Gly Leu Ala Lys Lys  
 145 150 155 160  
 Tyr Arg Asp Pro Arg Thr His Ala His Ile Pro Tyr Lys Glu Gly Lys  
 165 170 175  
 Ser Leu Thr Gly Thr Ala Arg Tyr Cys Ser Ile Asn Thr His Met Gly  
 180 185 190  
 Val Glu Gln Gly Arg Arg Asp Asp Met Glu Gly Ile Gly Tyr Ile Leu  
 195 200 205  
 Met Tyr Phe Leu Arg Gly Ser Leu Pro Trp Gln Gly Leu Lys Ala His  
 210 215 220  
 Thr Lys Gln Glu Lys Tyr Asn Arg Ile Ser Glu Arg Lys Gln Thr Thr  
 225 230 235 240  
 Pro Val Glu Leu Leu Cys Lys Gly Phe Pro Ser Glu Phe Ala Ala Tyr  
 245 250 255  
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 260 265 270  
 Tyr Leu Lys Arg Met Phe Arg Asp Leu Phe Val Arg Glu Gly Tyr His  
 275 280 285  
 Val Asp Tyr Val Phe Asp Trp Thr Leu Lys Arg Ile His Glu Ser Leu  
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Gln Arg Glu Arg Gly Asp Val Glu Gln Ala  
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<210> 24  
 <211> 55  
 <212> DNA  
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<400> 25  
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<223> oligonucleotide

<400> 28

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<211> 64

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<400> 29

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<211> 41

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<400> 30

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<220>

<223> oligonucleotide

<400> 31

ggcgtcgacg atgttatggg cgcccgagc ctcgcaaca 39

<210> 32

<211> 50

<212> DNA

<213> Artificial Sequence

<220>

<223> oligonucleotide

<400> 32

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<210> 33

<211> 41

<212> DNA

<213> Artificial Sequence

<220>

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<210> 34

<211> 57

<212> DNA

<213> Artificial Sequence

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<223> oligonucleotide

<400> 34

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<210> 35

<211> 40

<212> DNA

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<210> 36

<211> 70

<212> DNA

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<223> oligonucleotide

<400> 36

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<211> 11

<212> PRT

<213> Eimeria tenella (peptide)

<400> 37

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<210> 38

<211> 12

<212> PRT

<213> Eimeria tenella (peptide)

<400> 38

Thr Val Leu Met Leu Ala Asp Gln Met Leu Asn Arg  
1 5 10

<210> 39

<211> 11

<212> PRT

<213> Eimeria tenella (peptide)

<400> 39

Asp Ile Lys Pro Asp Asn Phe Leu Ile Gly Arg  
1 5 10

<210> 40

<211> 8

<212> PRT

<213> Eimeria tenella (peptide)

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<210> 41

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<213> Eimeria tenella (peptide)

<400> 41

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<210> 42

<211> 11

<212> PRT

<213> Eimeria tenella (peptide)

<400> 42

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1 5 10

<210> 43

<211> 5

<212> PRT

<213> Eimeria tenella (peptide)

<400> 43

Asp Leu Phe Phe Arg  
1 5

<210> 44  
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<212> DNA  
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<220>  
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<210> 45  
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<400> 45  
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29